CLAIMS

What is claimed is:

1   1.   A power amplifier comprising:

2   a first switching device connected between a first supply voltage and a first output node;

3   a second switching device connected between a second supply voltage and a second

4   output node; and

5   an inductance coupled between the first and second output nodes.

1   2.   The power amplifier of claim 1, wherein a load is coupled to the second output

2   node.

1   3.   The power amplifier of claim 1, further comprising a first capacitor coupled to the

2   first output node, and a second capacitor coupled to the second output node.

1   4.   The power amplifier of claim 1, further comprising a first capacitor coupled to the

2   first output node.

1   5.   The power amplifier of claim 1, further comprising a first capacitor coupled

2   between the first and second output nodes.

1   6.   The power amplifier of claim 1, wherein the first and second switching devices

2   are driven by signals that repeatedly turn the devices on and off.

Attorney Docket No: SIL.P0078

1   7.   The power amplifier of claim 6, wherein the first and second switching devices

2   are both cycled on during the same time period, and wherein the first and second

3   switching devices are both cycled off during the same time period.

1   8.   The power amplifier of claim 4, wherein the first capacitor is provided by the

2   input capacitance of a third switching device.

1   9.   The power amplifier of claim 3, wherein the first capacitor is provided by the

2   input capacitance of a third switching device, and wherein the second capacitor is

3   provided by the input capacitance of a fourth switching device.

1   10.   The power amplifier of claim 1, wherein the first and second switching devices

2   are comprised of transistors.

1   11.   The power amplifier of claim 1, wherein the first switching device is comprised of

2   a PMOS transistor, and wherein the second switching device is comprised of an NMOS

3   transistor.

1   12.   The power amplifier of claim 1, further comprising a load coupled across the first

2   and second output nodes.

1   13.   The power amplifier of claim 1, further comprising a transformation network

2   coupled to the first and second output nodes.

Attorney Docket No: SIL.P0078

1   14.   The power amplifier of claim 13, wherein the transformation network further

2   comprises:

3   a capacitor coupled to the first output node and a third node;

4   an inductor coupled to the second output node and the third node; and

5   a load coupled to the third node.

1   15.   The power amplifier of claim 1, further comprising a preamplifier connected to

2   the power amplifier, the preamplifier further comprising:

3   a third switching device connected between said first supply voltage and a third node and

4   coupled to the input to the first switching device;

5   a fourth switching device connected between said second supply voltage and a fourth

6   node and coupled to the input to the second switching device; and

7   a second inductor coupled between the third and fourth nodes.

1   16.   The power amplifier of claim 1, further comprising one or more inductors coupled

2   between the first output node and a third supply voltage.

1   17.   The power amplifier of claim 1, further comprising one or more inductors coupled

2   between the first output node and a third supply voltage, and one or more inductors

3   coupled between the second output node and a fourth supply voltage.

1   18.   A method of reducing the peak output voltage of an amplifier comprising the

2   steps of:

3   providing an inductor having first and second terminals;

4 providing a first switching device connected between the first terminal of the inductor

5 and a first supply voltage;

6 providing a second switching device connected between the second terminal of the

7 inductor and a second supply voltage;

8 applying a voltage between the first and second terminals of the inductor during a first

9 portion of a clock cycle by turning on the first and second switching devices; and

10 turning off the first and second switching devices during a second portion of the clock

11 cycle.

1 19. The method of claim 18, further comprising the steps of providing a first

2 capacitance connected to the first terminal, providing a second capacitance connected to

3 the second terminal, wherein current from the inductor charges or discharges the first and

4 second capacitances during the second portion of the clock cycle.

1 20. The method of claim 18, further comprising the step of connecting a load to the

2 first node.

1 21. The method of claim 18, wherein the load includes a reactive network.

1 22. The method of claim 18, further comprising the step of driving the first and

2 second switching devices such that the switching devices are turned on and off

3 simultaneously.

1 23. The method of claim 18, further comprising the step of driving the first and

2 second switching devices by repeatedly turning both devices on and then turning both

3 devices off.

   Attorney Docket No: SIL.P0078

1 24.   The method of claim 18, wherein the switching devices are comprised of

2 transistors.

1 25.   The method of claim 18, further comprising the step of differentially connecting a

2 load to the first and second nodes.

1 26.   The method of claim 18, wherein the load is connected across the first and second

2 nodes.

1 27.   The method of claim 18, further comprising the steps of:

2 providing a third switching device connected between the gate of the first switching

3   device and a third supply voltage;

4 providing a fourth switching device connected between the gate of the second switching

5   device and a fourth supply voltage; and

6 providing a second inductor connected between the gates of the first and second

7   switching devices.

1 28.   A differential power amplifier comprising:

2 a first amplifier having a first switching device connected between a first supply voltage

3   and a first output node, a second switching device connected between a second

4   supply voltage and a second output node, and an inductance coupled between the

5   first and second output nodes;

6 a second amplifier having a third switching device connected between a third supply

7   voltage and a third output node, a fourth switching device connected between a

8   fourth supply voltage and a fourth output node, and an inductance coupled

9   between the third and fourth output nodes; and

10   wherein the first and second amplifiers are coupled together to drive a load.

1   29.   The differential power amplifier of claim 28, wherein the second and fourth

2   output nodes of the first and second amplifiers are coupled together to drive the load.

1   30.   The differential power amplifier of claim 28, wherein the first, second, third, and

2   fourth output nodes of the first and second amplifiers are coupled together to drive the

3   load.

1   31.   The differential power amplifier of claim 28, further comprising:

2   a first transformation network connected between the first and second output nodes of the

3   first amplifier and the load, and

4   a second transformation network connected between the third and fourth output nodes of

5   the second amplifier and the load.

1   32.   The differential power amplifier of claim 28, further comprising:

2   a first transformation network connected between the second output node of the first

3   amplifier and the load, and

4   a second transformation network connected between the third output node of the second

5   amplifier and the load.

1   33.   The differential power amplifier of claim 28 further comprising:

2   an inductor coupled between the first output node and the third output node.

        Attorney Docket No: SIL.P0078

1 34. The differential power amplifier of claim 28 further comprising:

2 an inductor coupled between the second output node and the fourth output node.

1 35. The differential power amplifier of claim 31, wherein the first transformation

2 network further comprises:

3 a first capacitor coupled to the second output node of the first amplifier and coupled to

4   the load; and

5 a first inductor coupled to the first output node of the first amplifier and coupled to the

6   load.

1 36. The differential power amplifier of claim 31, wherein the second transformation

2 network further comprises:

3 a second capacitor coupled to the third output node of the second amplifier and coupled

4   to the load; and

5 a second inductor coupled to the fourth output node of the second amplifier and coupled

6   to the load.

1 37. The differential power amplifier of claim 28, wherein the first amplifier receives

2 first and second inputs.

1 38. The differential power amplifier of claim 37, wherein the first and second

2 switching devices of the first amplifier are enabled and disabled simultaneously; and

3 wherein the third and fourth switching devices of the second amplifier are enabled and

4 disabled simultaneously.

Attorney Docket No: SIL.P0078

1   39.   The differential power amplifier of claim 38, wherein the first and second

2   switching devices of the first amplifier are enabled during the time that the third and

3   fourth switching devices of the second amplifier are disabled, and wherein the third and

4   fourth switching devices of the second amplifier are enabled during the time that the first

5   and second switching devices of the first amplifier are disabled.

1   40.   The differential power amplifier of claim 28, wherein the amplifier further

2   comprises:

3   a first capacitance coupled between the first output node and the first supply voltage;

4   a second capacitance coupled between the second output node and the first supply

5   voltage; and

6   wherein the second amplifier further comprises:

7   a third capacitance coupled between the third output node and a third supply voltage;

8   a fourth capacitance coupled between the fourth output node and a fourth supply

9   voltage.

1   41.   The differential power amplifier of claim 40, wherein the first, second, third, and

2   fourth capacitances are provided by capacitors.

1   42.   The differential power amplifier of claim 40 wherein the first, second, third, and

2   fourth capacitances are provided by the input capacitance of fifth, sixth, seventh, and

3   eighth switching devices, respectively.

1   43.   The differential power amplifier of claim 42, wherein the fifth switching device is

2   coupled to the third output node, and the sixth switching device is coupled to the fourth

3   output node, and the seventh switching device is coupled to the first output node, and the

4   eighth switching device is coupled to the second output node.

1   44.   The differential power amplifier of claim 28, further comprising a preamplifier for

2   each of the first and second power amplifiers.

1   45.   The differential power amplifier of claim 44, wherein each of the preamplifiers

2   further comprise:

3   fifth and sixth switching devices connected between the first and second supply voltages;

4   and

5   a third inductor connected between the fifth and sixth switching devices.

1   46.   The differential power amplifier of claim 28, wherein the first and second

2   amplifiers are cross-coupled.

        Attorney Docket No: SIL.P0078